Abstract

A preparation and a method of making composite blastocysts (CBs) from aggregates of dissociated cells of non-viable pre-embryos are disclosed. The CB is characterized morphologically by having two distinct tissue types, the inner cell mass (ICM) and the trophectoderm (TE), and a blastocoelic cavity (BC). The ICM is differentially stainable with bisbenzimide and the TE is differentially stainable with propidium iodide. The ICM is pluripotent in that it contains embryonic stem (ES) cells. The TE cells are pluripotent in that they can give rise to all cell types normally derived from TE cells. The primate TE is characterized by the production of chorionic gonadotrophin. The method of making CBs is an aggregation process (AP) comprising *inter alia* the following steps: 1) dissociation of discarded pre-embryos; 2) isolation of single nucleated cells from dissociated discarded pre-embryos; 3) microsurgical encapsulation of several cells within a host zona pellucida or artificial aggregation with or without a non-zona vessel; and 5) primary culture of the cell aggregates for multiplication and differentiation of cells.

One particularly advantageous embodiment is that the starting material is non-viable pre-embryos. Another advantageous embodiment is that the AP allows individual cells from non-viable pre-embryos to further multiply, and become integrated into CBs. The novel CBs and the novel aggregation process are disclosed.